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**REMARKS**

In view of the amendments made to the specification, claims and abstract, and in view of the following remarks, reconsideration of the application is respectfully requested.

Clearly, throughout the application and claims, the fact that the mean diameter of the calcium particles is less than or equal to six microns is heavily emphasized. For instance, all of the originally filed independent claims include such a limitation, as well as the Abstract. The specification brings this point out most particularly on page 10, lines 22-24. However, page 11, line 3 includes a typographical error referencing seven microns instead of six such that this language has been amended to correspond to that set forth in the remainder of the application, such as in the claims and on page 10, lines 22-24. A similar change has been made on page 10, line 30 for consistency purposes, as well as to add a space between the word "to" and the number "5". Based on the original disclosure and claims, it is respectfully submitted that no new matter has been added by these changes. Instead, these changes are only made for consistency purposes.

With respect to the claims, it was noted that the originally filed application did not include claims 23 and 24, but that the Office Action did not set forth a renumbering of the claims. Therefore, to clarify the claims and to maintain the prior numbering, claims 23 and 24 have been canceled. Correspondingly, claim 29 has been amended to depend from claim 22. Finally, a minor idiomatic English error was noted in claim 55 and has been corrected.

With respect to the Abstract, a substitute Abstract is provided herewith in single paragraph form, with minor clarifications for consistency purposes made, as required on the top of page 2 of the Office Action. Based on the submission of the substitute Abstract of the Disclosure, withdrawal of this objection is specifically requested.

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With respect to the rejection of the application based on prior art, it is respectfully submitted that the presently claimed invention is not obvious over the combination of Fleury et al. in view of Hansen et al. as set forth in the Office Action. More specifically, it is respectfully submitted that the claims in the present application include specific limitations not disclosed or suggested in the prior art and further that modifying Fleury et al. in view of Hansen et al. would destroy the specific teachings in these references such that the combination would not be obvious to one of ordinary skill in the art.

Initially, it is specifically pointed out to the Examiner that the present invention relies particularly on utilizing calcium particles having a mean diameter of less than or equal to six microns. That is, in accordance with each of the independent claims in this application, every single calcium particle utilized in accordance with the invention must meet this six micron or less diameter limitation. It is respectfully submitted that none of the prior art specifically discloses this limitation and, in fact, this limitation has not at all been addressed in the Office Action. Particularly, the secondary reference to Hansen et al. does not disclose any corresponding particle size limitation. On the other hand, Fleury et al., which is assigned to the same Assignee as the present invention and to which the present invention is considered to be an improvement over, discloses utilizing calcium phosphate with a particle size of less than 150 microns. This disclosure is clearly set forth in the abstract and each of the independent claims in the patent. However, in all fairness, the specification has some disclosure in column 6, particularly lines 36-48, which discusses smaller particle sizes that can be as small as four microns. In any event, at best, this patent teaches having around 90% less than seven microns. This is opposed to having 100% less than or equal to six microns. Therefore, there is considered to be a distinction and it is respectfully submitted that the Fleury et al. patent does not specifically teach having 100% of the calcium particles less than six microns such that this limitation is seen to be distinguishing. Clearly, such a small particle size requirement was not important in the post-fermentation arrangement disclosed in Fleury et al. as this patent does disclose particle sizes that can range up to 150 microns. On the other hand,

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particular steps were taken in accordance with the present invention to ensure that the entire range of calcium particles are maintained at or below six microns. Without a specific teaching to this effect, it is respectfully submitted that the claims are distinguished over this known prior art.

In the outstanding Office Action, the Examiner states that Fleury et al. essentially discloses the present invention except that the claims of the present application require the calcium to be added prior to inoculation, fermentation or pasteurization. To this end, the Examiner relies upon the secondary reference to Hansen et al. to set forth the process of preparing a fortified yogurt wherein calcium is added prior to inoculation. With respect to this combination, it is considered to have a few major shortcomings. First of all, it should be specifically noted that Fleury et al. teaches away from pre-fermentation addition of calcium. That is, the attention of the Examiner is drawn to the disclosure in the '903 patent in column 4, lines 63 through column 5, line 2 wherein it is specifically stated that calcium fortification methods of the patent "rely upon post-fermentation rather than pre-fermentation addition." Therefore, it is respectfully submitted that Fleury et al. teaches away from the present invention such that one of ordinary skill in the art, regardless of the teachings in Hansen et al., would not look to modifying Fleury et al. to utilize pre-fermentation addition. This teaching away characteristic is indicia of non-obviousness under *Graham v. Deere* such as it is respectfully submitted that the combination presented is improper.

Another major distinction in these references which is seen to teach away from the combination presented is that Hansen et al. discloses that it is imperative that chelating and/or alkaline agents be added in order to specifically keep the pH of the yogurt base mix above about 6.7 prior to pasteurization. On the other hand, Fleury et al. specifically teaches to maintain the base within a few tenths of the pH of the yogurt and, as more specifically set forth in column 6, lines 21-25, between about 4.0 and 4.6. Since Hansen et al. highly emphasizes that the chelating and/or alkaline agents must be added and that

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the pH must be maintained above about 6.7 in order for the invention disclosed therein to properly function, modifying Fleury et al. in view of Hansen et al. would greatly alter the desired pH characteristics desired by Fleury et al., thereby destroying the reference. For this reason, it is also submitted that one of ordinary skill in the art would not make the combination presented by the Examiner.

Another point set forth in the claims of the present application which is not at all addressed in the Office Action is that both Fleury et al. and Hansen et al. are specifically concerned with forming yogurt. However, the Examiner will note that a majority of the claims in the present application read on the formation of milk and other dairy products. Although the prior art does disclose the possibility of making other dairy products such as sour cream, pudding or cheese, none of the prior art is concerned with making a milk beverage having an enhanced calcium content by the addition of calcium particles having mean diameters less or equal to six microns prior to pasteurization such as set forth in many of the claims. To this end, the Examiner's attention is drawn to, for example, method claim 40 and product claims 53-57, 63 and 65. By the way, it is considered that any argument along the lines that milk would be formed prior to a yogurt in the prior art would fail to address why one of ordinary skill in the art would stop the processes taught in the prior art to create a corresponding, viable product, or why one would modify such a milk beverage, such as by flavoring.

Based on the above, it is respectfully submitted that the Applicant has particularly pointed out various claim limitations not addressed in the Office Action or the prior art of record. Furthermore, there are various specific reasons why one of ordinary skill in the art would not combine the references in the manner suggested by the Examiner in an attempt to meet the present invention. Therefore, based on the above remarks, and the amendments made to the specification, claims and abstract, reconsideration of the application is respectfully requested. More specifically, it is respectfully requested that the claims be allowed and the application passed to issue. If the Examiner should have

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any additional concerns regarding the allowance of this application, she is cordially invited to contact the undersigned at the number provided below if it would further expedite the prosecution of the application.

Respectfully submitted,



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**Substitute  
09/728,443**

**ABSTRACT OF THE DISCLOSURE**

Nutritionally improved cultured dairy products, such as milk beverages and yogurt products, include a fine powdered calcium phosphate salt of reduced particle size having a mean diameter  $\leq 6\mu\text{m}$  in amounts sufficient to provide a total calcium content of 0.25% to 0.75%. A method for producing the calcium fortified products is also provided wherein a fine powdered insoluble calcium salt is admixed with a milk blend prior to fermentation. A yogurt can then be prepared by conventional fermentation. Both stirred style and cup set style yogurt products can be prepared.

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Most importantly, the calcium phosphate flour has a particle size having a mean diameter of less than or equal to six microns (" $\leq 6\mu\text{m}$ "). Having a calcium phosphate being of sufficiently reduced particle size is important to maintaining the calcium in suspension in the milk blend for extended times and to avoiding a "grittiness" organoleptic attribute in the finished yogurt. Preferably, the calcium phosphate has a particle size of less than or equal to 5 microns (" $\leq 5\mu\text{m}$ ") **[and for best results less than 11  $\mu\text{m}$ ]**.

Of course, the calcium phosphate material will have a particle size distribution curve. Surprisingly, if a significant amount of the calcium phosphate (i.e., >10%) is larger than about 150 microns, then the calcium phosphate begins to become perceptible as imparting an undesirably "chalky" mouth feel. For the very best product, preferred herein are yogurt finished products wherein the calcium phosphate particle size is such that the mean particle size is less than four microns and at least 90% of the calcium phosphate has a particle size of less than **[about seven] or equal to six** microns.

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29. (Once Amended) The product produced by the method of claim [24] 22.
55. (Once Amended) The food product of claim 54 wherein the pasteurized milk base comprises at least [on] a mammalian milk ingredient.



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**[CALCIUM FORTIFIED DAIRY PRODUCTS  
AND METHODS OF PREPARATION]  
ABSTRACT OF THE DISCLOSURE**

Nutritionally improved cultured dairy products, such as milk beverages and yogurt products, include a fine powdered calcium phosphate salt of reduced particle size having a mean diameter  $\leq 6\mu\text{m}$  in amounts sufficient to provide a total calcium content of 0.25% to 0.75%. A method for producing the calcium fortified [yogurt] products is also provided wherein a fine powdered insoluble calcium salt is admixed with a milk blend prior to fermentation. [The] A yogurt [is] can then be prepared by conventional fermentation. Both stirred style and cup set style yogurt products can be prepared.